

# **Simulation Training Tools for Lean Manufacturing**

**Mel Adams and Hank Czarnecki  
University of Alabama in Huntsville  
Huntsville AL 35899  
(256) 890-6061  
adamsm@email.uah.edu**

## **ABSTRACT**

The Manufacturing Extension Partnership (MEP) is a nationwide network of seventy not-for-profit centers whose purpose is to provide small and medium-size manufacturers with the help they need to succeed. The centers are linked through the Department of Commerce's National Institute of Standards and Technology. The Alabama Technology Network, Inc. (ATN) joined the MEP in 1996 and began operation as a nonprofit corporation through a partnership among the University of Alabama System, Auburn University and selected two-year colleges. ATN professionals are located in ten regional centers and are visiting companies daily, assessing their needs, and providing technical and business assistance and work force development. The University of Alabama in Huntsville (UAH) is the Region 1 center serving six counties in North Alabama.

This paper discusses the use of simulation training tools that are being used by the ATN to support lean manufacturing. The training tools that will be discussed are:

- The setup reduction training simulation is a hands-on exercise that helps managers and operators understand the potential for improvement in operations with changeovers. As competitive pressure forces manufacturers to be more responsive, setup reduction is the key to reducing batch size and thus shortening lead time. The training exercise is particularly effective at helping people see the potential of relatively low cost changes in procedures.
- The electronics assembly training simulation is an excellent presentation of the entire lean approach to systems management and continuous improvement. From a historical perspective it compares and contrasts lean manufacturing with craft/custom manufacturing, and traditional mass production.
- The tube factory training simulation also presents the basic lean approach and a few of the key tools during the transition from traditional chaotic push manufacturing to a lean pull system. This training simulation is particularly effective with new employee orientations and as the initial training for a new Kaizen team whose members have little exposure to lean.

Other topics in the paper are:

- lessons learned from using the simulation training tools with manufacturers
- benefits and disadvantages of simulations training tools

